

CLAIMS

1. A device comprising:

a memory manager configured to (i) map a first picture from a video signal among a plurality of picture segments and (ii) generate a list associating each of said picture segments to a plurality of physical pages in a memory; and

a direct memory access unit configured to store said first picture among said physical pages according to said list and said mapping.

2. The device according to claim 1, further comprising a mapping memory configured to transfer said list from said memory manager to said direct memory access unit.

3. The device according to claim 2, further comprising a decode processor configured to request said memory manager to allocate space in said memory to store said first picture.

4. The device according to claim 3, wherein said memory manager is further configured to transfer an identification value

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for said first picture to said decode processor after allocating said picture segments.

5 5. The device according to claim 4, wherein (i) said decode processor is further configured to transfer said identification value to said direct memory access unit to locate said mapping in said mapping memory, (ii) said first picture is divided into a plurality of spatially rectangular regions mapped to an integer number of said physical pages and (iii) each group comprising four of said spatially rectangular regions sharing a common corner is mapped among at least two banks of said memory.

6. The device according to claim 1, wherein each of said picture segments is mapped to at least one of said physical pages in each of a plurality of banks in said memory.

7. The device according to claim 1, wherein said picture segments for said first picture are stored in physically non-contiguous address ranges in said memory.

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8. The device according to claim 1, wherein each of said picture segments comprises one group of a plurality of luminance samples and a plurality of chrominance samples from said first picture.

9. The device according to claim 1, wherein said first picture is divided into a plurality of spatially rectangular regions each mapped to an integer number of said physical pages.

10. The device according to claim 9, wherein each group comprising four of said spatially rectangular regions sharing a common corner is mapped among at least two banks of said memory.

11. A method for storing a video signal, comprising the steps of:

(A) mapping a first picture from said video signal among a plurality of picture segments;

5 (B) generating a list associating each of said picture segments to a plurality of physical pages in a memory; and

(C) storing said first picture among said physical pages according to said list and said mapping.

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12. The method according to claim 11, wherein step (C) comprises the sub-step of:

storing said picture using a plurality of direct memory access operations.

13. The method according to claim 11, further comprising the step of:

marking said picture segments allocated to said first picture as used.

14. The method according to claim 13, further comprising the step of:

deallocating said picture segments from said first picture to free space in said memory.

15. The method according to claim 14, further comprising the step of:

marking said picture segments deallocated from said first picture as free.

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16. The method according to claim 11, further comprising the step of:

allocating a second picture from said video signal among said picture segments including at least one of said picture segments deallocated from said first picture.

17. The method according to claim 16, wherein said first picture has a different size than said second picture.

18. The method according to claim 11, further comprising the step of:

generating a value identifying which of said picture segments are mapped to said first picture.

19. The method according to claim 11, wherein each of said picture segments is mapped to at least two of said physical pages in each of a plurality of banks in said memory.

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20. An device comprising:

means for mapping a first picture from a video signal
among a plurality of picture segments;

5 means for generating a list associating each of said
picture segments to a plurality of physical pages in a memory; and

means for storing said first picture among said physical
pages according to said list and said mapping.